

May era sa Agrikultura



Quail Raising

Cisima P. Lavega



UPLBFI

May Pera Sa Agrikultura:
Quail Raising

Cisima P. Lavega

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Contents

	Page
Preface	1
Quail Farming: A Profitable Business	3
I What are Quails?	5
II Quail Farming as a Business	6
How to venture into Quail Business	7
Housing and Facilities	8
III Growing/Rearing Management	12
Management of Breeder, Layer, and Broiler Quails	12
Disease Prevention and Control	15
Brooder House/Cage	16
IV Brooding Management	17
Some useful tips in brooding management	17
V Profitability	19
VI Laws and Restrictions	21
Notes	22
References	23
Appendix on Popular Quail Eggs and Meat Recipes	24

Preface

The *May Pera sa Agrikultura* offers a series of publications on agricultural livelihood options. The first installment consists of five topics, such as Quail Raising, Mango Production, Native Pig Raising, Organic Agriculture, and Organic Soil Amendments.

This Quail Raising handbook showcases how the activity may be turned into a profitable business. Quail raising can be performed with minimal input requirements, such as space and labor. It has a great market potential with year-round demand from all walks of life. Moreover, quail raising is a livelihood that helps restore the communities' natural resources by utilizing the quail dungs as fertilizer.

This quail farming technology had been published several decades ago by the late Dr. Severino S. Capitan. However, it is observed that the new generation of farmers and quail enthusiasts barely got a copy; thus, the publication of this new material. This time, it is rewritten in layman's term with hopes of reaching the rural and or less privileged communities so they may use the technology to raise quails as a hobby or to augment their income.

Despite the challenges met in the production of this publication, which were intensified with the onset of the pandemic, determination and the passion to share this livelihood technology pushed the author to continue and hurdle the challenges along the way.



Quail Farming: A Profitable Business

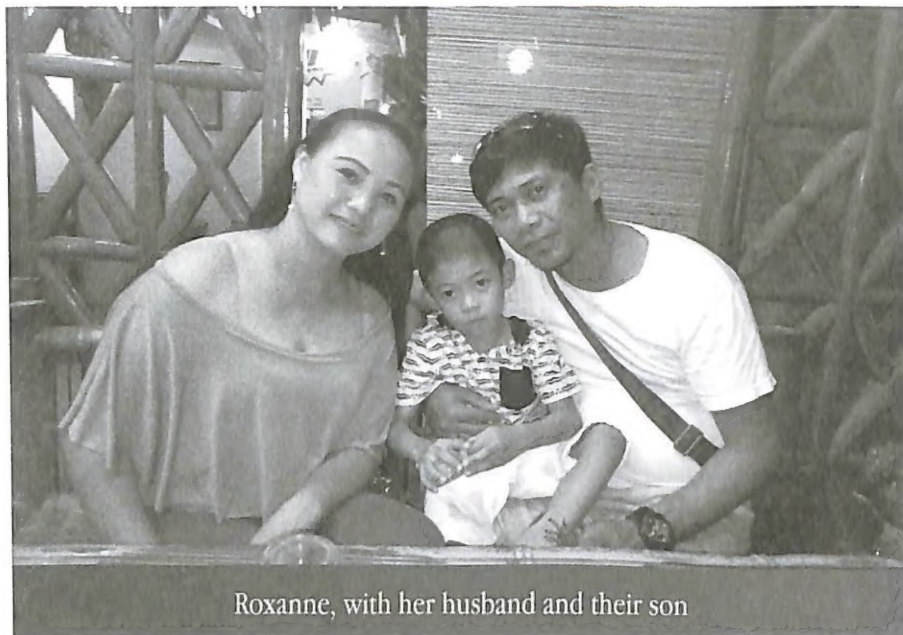
Joseph (Navasero of Mayondon, Los Baños, Laguna) is a young man who became an entrepreneur because of his passion for animals, specifically quails. He was so fascinated with these small birds that he requested his mother to buy him few heads as pets. While studying, and as he matures, his love for animals grew also, that his few heads became hundreds, to thousands. After culling his last flock, he took a break from raising quails and concentrated on cleaning the cages, fixing the worn out fixtures, and preparing another cage for bigger number of pullets to be loaded the following season. Joseph's testimony would prove that there is really money in quail raising.

Another testimony of hard work with a good heart receives reward. Roxanne, an ordinary government employee living in Bubucal, Sta. Cruz, Laguna uprooted her siblings and some of their relatives in Bohol to help her with the daily routine of quail raising.

Roxanne is married and has a special child that needs attention and care by a specialized doctor. The child's education needs to be in a special school, which is very expensive. Their meager income could not meet both ends. It was then that the love for animals makes way for her husband to raise poultry such as native chicken, ducks, goat and quail. Since their backyard has limited area, they could



Their quail eggs after
the recent harvest



Roxanne, with her husband and their son

not increase the number of animals for additional income. However, they find glimpse of hope for expansion with quails.

In 2014, they started with 700 heads of layers bought from a quail farmer in Batangas. However, after 4 to 5 months, they culled the birds because they looked bad and stopped laying eggs. They sold the culled quails as meat at P350 per kilo. They learned lessons from the first batch and applied them for the second batch of quail. This time, they bought 2000 heads, 15-day old growers from a reputable breeding farm. The story went on, that the couple could no longer cope up with the demands for their quails, plus their work, and most specially for their child's therapy. Roxanne had to invite her siblings and some relatives in Bohol to help in their daily routine. True enough, because of quails, they were able to buy a car and sustained their daily household needs. The tuition fee for her child was also paid through their income from quails

I What are Quails?

Quails are small birds originating from Europe, Asia and Africa. According to scientists, the common quail (*Coturnix coturnix*) and the Japanese quail (*Coturnix japonica*) are the most popular breed; they are active, restless and excitable (Fig. 1). The average body weight at sexual maturity is 115 g for females and 105 for males, 10g lower than females. Layers can consume 16 to 24 g of feeds daily. Each layer can produce a yearly average of 215 eggs. Productive life of quails is 2 years.

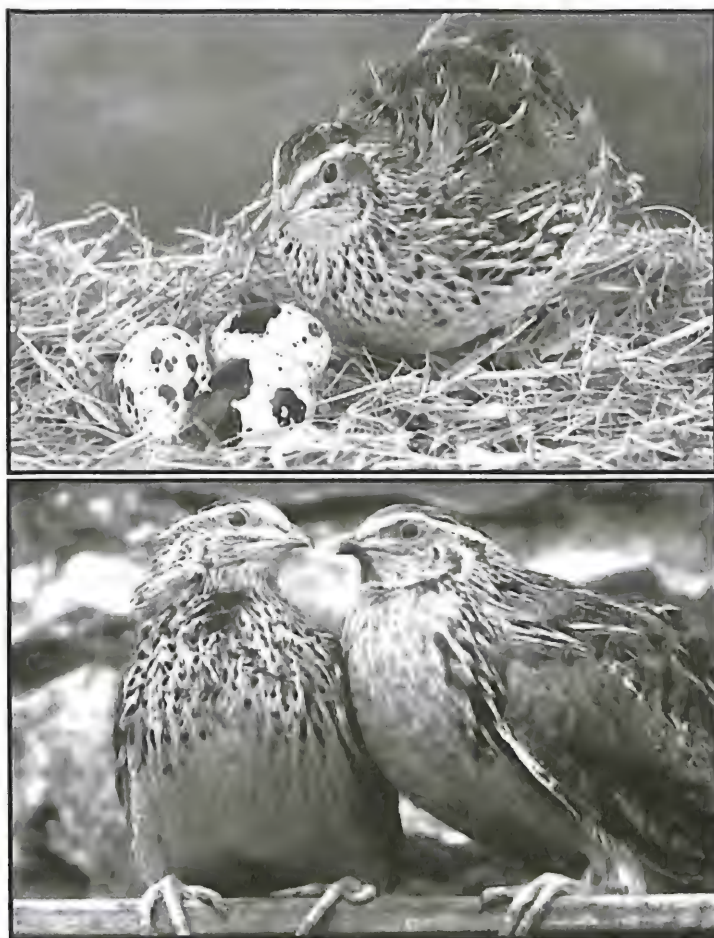


Fig. 1. Laying Japanese quail (upper photo); bottom photo: right photo: male (smaller one & no dark spots on breast feathers) and female quail

Sources: <https://www.jcwaterfowl.com/japanese-quail/>; <https://www.facebook.com/Quails.kaadai/>

II

Quail Farming as a Business

Quail farming needs small capital for investment, small space for raising and technical know-how is less required. It is a profitable business for the unemployed, retirees, and provides additional source of income for those who are already employed. However, if one intends to try this business, he/she must prepare an effective business plan before starting. (<https://www.roysfarm.com/quail-farming-business-plan/>.) The business plan should include the purpose, products to produce, housing, feeding, health care and marketing.

According to Capitan (2003), the quail farming business in the Philippines started in late 70's. Quail eggs were sold in public places such as street corners, jeepneys and buses as fast food for hungry passengers. In school canteens and restaurants, quails are always part of the menu. Today, after 16 years, Capitan's observation is still true. Aside from the cooked eggs sold by peddlers, another recipe from quail eggs is becoming popular; they call it "kwek-kwek", wherein the eggs are boiled to cook, unshelled, coated with flour and deep-fried. Quail eggs are always part of menus served on occasions like birthdays, fiesta and other gatherings.

Quail farming is a chunk of the poultry industry; but, quite far behind from chicken and ducks. Big farms are mostly found in the Luzon area like Bulacan, Rizal, and Quezon. Meanwhile, in Cebu, Negros in Visayas, and Zamboanga and Basilan in Mindanao, information on their population is very limited, as if the industry is not existing (Capitan, 2003). However, a traveler would disagree to this information because he/she always finds quail eggs sold anywhere, especially in the streets.

Quail raisers, like any other business venture, face challenges like lack of marketing information, absence of support system and the high prices of quail feeds. Feeds pose 70-80% of the total operational cost for quail like any other poultry animals. Marketing of quail eggs is not a problem. Large-scale quail farms sell their produce directly to big establishments like restaurants and supermarkets; while small-scale backyard raisers manage to sell their produce directly to consumers where they earn higher profit.

Small scale quail raising is a family enterprise; thus, daily routine of maintaining the birds can be shared by family members. Another added feature of these birds is that, they are not sensitive to common diseases unlike chickens; thus, less tedious as a family business.

How to Venture into Quail Farming Business

The critical part in quail farming business is the selection of the first stock. This is the foundation stock where the second and the third generation would come from; as well as the profit that could be realized. Stocks should come from reputable quail farms, especially breeding farms if available. The following are some tips in the selection of stocks:

1. Body conformation. Feathers should be neat and clean. Avoid buying those with streak of white or black feathers. These are signs of inbreeding wherein siblings mate with each other or parents mate with their off springs. Inbreeding may cause deformities, low egg production, low fertility and very high mortality.
2. Size. Choose those birds with uniform size. Japanese quail (*Coturnix japonica*), at 30-35 day-old, has an average weight of 100g; while the American quail (*Coturnix coturnix*) of the same age has an average weight of 200g.
3. Know the record of the parent-stocks.
 - a. Size of eggs
 - b. A 65% average of laying efficiency within 300 days laying period is desirable
 - c. Growth rate/body weight

The size of the initial stock should not be big, even how financially able is the raiser. In any business venture, it is advisable to start small and get the necessary experience before going large scale. Quails multiply rapidly; therefore, expansion will not be a problem. A beginner can start with 50-100 pullets.

Housing and Facilities

The housing requirements of quails are simple and not costly compared to those of other poultry species. The performance of the birds will depend on the comfort they receive in their housing facilities. The following factors are considered:

1. Temperature. This is the most important factor that affects the birds' comfort. Air speed and solar radiation also contribute.
2. Floor space. Each bird should have enough space for movement and for them to feel comfortable (Table 1).
3. Construction material. Use local materials such as bamboo, cocolumber, galvanized iron sheet, old fishnets, lawanit, and chicken wire or welded mesh wire.

Table 1. Floor space requirement of quail per stage per bird

Life stage	Japanese quail	American quail
Chick (1-15 days old)	2 1/2 " x 2 1/2"	2 1/2 " x 2 1/2"
Grower (16-35 days old)	3 " x 3"	3 1/2 " x 3 1/2"
Layer (36 & above)	3 1/2 " x 3 1/2"	4 1/2 " x 4 1/2"

Grower and Layer House

A 6 x 1 ft dimension can comfortably house 50 to 100birds. The flooring and all the walls are to be made of 1.27 to 2.54 cm mesh wire for good ventilation while the top or cover could be of lawanit board to prevent the birds from flying.

The layer house should be constructed with slightly inclined flooring for easy collection of eggs (Figure 2). The house of the quails could be placed under a roof, an elevated house, or in a garage. It should be covered with old fish nets to cover unnecessary openings for the predators to enter like cats, rats and snakes.



Fig.2a. Quail layer cage
(front view)
Photo by Kristine
Camille Tenorio



Fig.2b. Quail layer cage
(side view)
Photo by Kristine Camille Tenorio

Fixtures

1. Feeder. The feeding trough should measure 3 ft in length, 4 inches in width and 2 inches in height. This could be made of wood or galvanized iron and covered with mesh wire (1/2 inch) to prevent the birds from scratching out the feeds (Figure 3a).
2. Waterer. A gallon type waterer can be bought or improvised to fit the needs of the birds. The waterer should also be covered with 1-inch mesh wire to prevent the birds from drowning (Figure 3b).
3. Egg catcher. This is used to facilitate egg collection (Figure 3c).
4. Bird Net. To avoid injury on the birds during catching, a net is used (Figure 3d). The net must be small to go through the doors of the pens, but large and deep enough to catch the birds. A handle should be long to reach the back part of the pen.

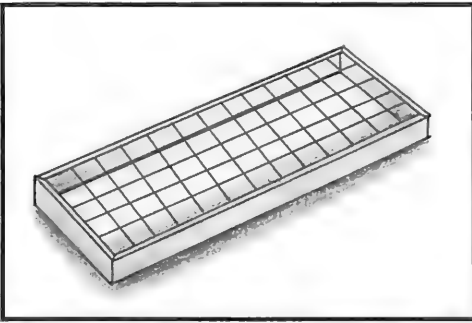


Figure 3a. feeder

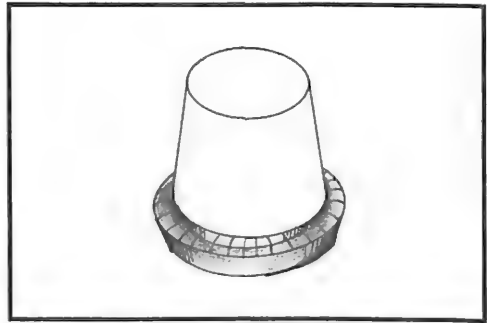


Figure 3b. waterer

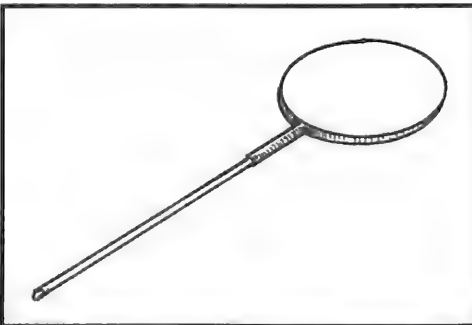


Figure 3c. Egg catcher

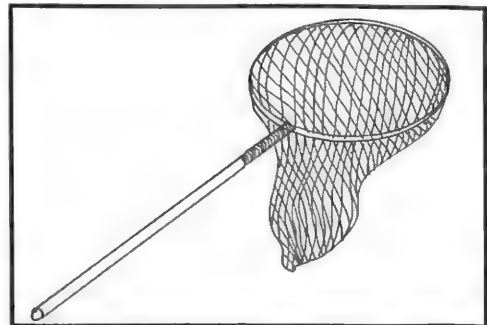


Figure 3d. Bird net

Other Tips on Housing

1. Curtain or windbreak should be prepared to cover the pen when harsh weather condition comes. Empty feed bag or sawali can be used as windbreak.
2. Good hygiene must be observed for the health of the family and the birds.
3. The quail pen should be placed in an area with good ventilation, but not direct to sunlight and strong winds.
4. Cleanliness and beauty must always be considered to attract customers.

III

Growing/Rearing Management

Flock for laying eggs need not have males because females can produce eggs using quail layer feeds. It is advisable to purchase female quails intended for laying eggs before they are sexually mature, about 15-20 days old. In this way, they have enough time to adjust in their new environment and to avoid stress. Meanwhile, flock intended for breeding or raising another group of chicks should have male and female ratio of 1:4 (Capitan, 2003). Extra male can be grown as broiler. Identification of male and female must be done as early as the chick is one-day old. However, this can be done only by experienced raiser who identifies the chick before it is transferred to the brooder cage. The reproductive organ of the quail pullet starts to develop at 30 days old. The following signs are observed as they approach sexual maturity:

1. Widening of the pelvic bones and enlargement of the abdomen
2. Friendly and happy pullets
3. Looking for nest
4. Enlarged, dilated and moist vent

The above signs are confirmed by the laying of the first eggs. Quail pullet that matures and lays an early egg will be selected as breeder. According to the study of Capitan (1981), the earliest average age at sexual maturity was 49 days. This was recorded by him (Capitan, 2003). The pullet is best transferred to the layer house before it starts laying, about 30-35 days old. Mishandling of the bird may cause mortality or injury. To avoid this danger of transferring, the growing house/cage becomes the layer cage.

Management of Breeder, Layer and Broiler Quails

Profit in any business depends on the management system. This includes the good quality of foundation stock and feeds, assured market outlet of produce, and effective business approach.

Daily Routine Activities in the Layer House

1. **Feeding.** Generally, mature laying quail consumes an average of 20 g of feeds a day. A good laying hen consumes more feeds than others. The quail is fed at least twice a day, one in the morning and another in the afternoon. But if the feeding trough is empty, it must be replenished immediately.
2. **Watering.** Clean fresh water must be available all the time and waterer should always be cleaned.
3. **Egg collection.** Under good management, a laying quail produces one egg every day. It is recommended that eggs be collected frequently and be kept in the cold storage (50-60°F), with a relative humidity of 70-75%; and eggs should not be left longer in cages where they are exposed to dirt, microorganisms, and predators.
4. **Cleaning.** The raiser must see to it that the laying cages, egg baskets, egg boxes, and egg roll out are kept cleaned. Use warm water (110-115°F) in cleaning dirty eggs.

To keep the surroundings clean, quail droppings should be removed daily. Collected droppings can be used for composting bio-degradable materials and as fertilizer in organic crop production.

Lighting for the Layers

Additional lighting for laying chickens and ducks have positive effect on egg production. Quail hens need 14 to 16 hours of light (Capitan, 2003), which means additional artificial lights to maintain egg production.

Culling

Unproductive layers as well as abnormal and sickly birds should be removed from the flock. This process is called culling. They consume feeds, but do not produce eggs; thus, they are called “non-paying boarders.” Table 2 presents the distinguishing characteristics between good and poor layers.

Table 2. Distinguishing characteristics between good and poor layers

Character	Good Layer	Poor Layer
Eyes	Bright	Dull
Abdomen	Soft with thin skin, expanded	Hard with thick skin, contracted
Vent	Large, moist, dilated, oval-shaped	Small, dry, puckered, round
Pubic bones	Thin and pliable, spread apart	Thick and hard, close together
Span between keel bone and end of pubic bones	Two fingers	Less than 2 fingers

Healthy quail bird is active, with alert eyes, shining and well-combed feathers. The layer lays eggs daily. Figures4 and 5 show the distinguishing features of a healthy quail bird, as compared to sickly quail.

Disease Prevention and Control

Unlike chicken and duck, quail is more resistant to diseases. However, reduction in egg production, low fertility, delayed maturity, poor hatchability and death would surely decrease the profit of raising quail (Capitan, 2003). As the saying goes, prevention is better than cure. The following are simple guides to prevent diseases and pests.

- 1. Buy foundation stocks from reputable farms only.
- 2. Raise healthy and strong birds. Sickly birds must be culled and dispose properly.
- 3. Feed balanced ration.

As always said, cleanliness is the key to healthy birds as they will provide eggs; thus, yielding good profit.



(a)



(b)

Fig. 4. Healthy quail bird, active, lays eggs, with well-combed feathers and alert eyes

Sources: a: <https://futurepoultrysolutions.com/product/japanese-quails-sale/>

b: <https://www.attainable-sustainable.net/quail-part-one/>



Fig. 5. Sickly quail bird: inactive, weakling, with scattered feathers and droopy eyes, lays few eggs or none at all

Source: <https://www.backyardchickens.com/hredirect2.php?c=6682057>

Brooder House/Cage

When quail raiser prefers to expand his/her business by hatching the eggs and growing the chicks for another batch of stocks, a brooder house or cage is needed. A brooder house with a dimension of 60.96 x 137.16 x 30.48 cm (2 x 4.5 x 1.0 ft) is enough for 200 quail chicks. The three sides and the top portion should be closed using a lawanit board, with the mesh wire or chicken welded wire in the front. For frames, 2.54 cm x 2.54 cm (1inch x 1 inch) coco lumber or wood could be used for support, with 5.08 cm x 5.08 cm (2-inch x 2 inch) of lumbers highly recommended. (Figure 6 shows a simple design of brooder cage.)

Light is needed by the newly hatched chicks in the brooder house to supply heat and guide them to feeds and water. A 50-watt incandescent bulb is enough inside the brooder for the needed comfort of the chicks.



Fig.6. Brooder cage
Photo by: Mar B. Maningas

IV

Brooding Management

Special care and attention given to newly hatched chicks is crucial for their health and survival. This is called the brooding stage where the quail chick, like any other poultry chick, needs additional heat for at least three weeks after hatching (Capitan, 2003). Additional heat can be supplied using the mother hen or an artificial heat from an incandescent lamp in a brooder cage or pen.

Some useful tips in brooding management

Sanitation

1. Brooder cages or pens should be disinfected two or three days before the actual operations. The temperature of the cage should be 32-35°C at least 30 minutes before the chicks arrive.
2. A movable curtain should enclose the brooder house to check draft.
3. Old newspapers should be laid on the brooder floor, about six layers. This will serve as feeder for the chicks for six days. Daily removal of the top layer maintains cleanliness and sanitation of the cages.
4. Feeds and the waterer for the chicks have to be placed in the newspaper, but not in the area near or under the source of heat. This is the area where the chicks stay for the heat they need.
5. Baby chicks should be placed immediately in the brooder as soon as they arrive from the incubator.
6. Provide cool fresh water for the chicks. Feeds should not run-out; it must be replaced immediately when consumed. Within three days, vitamins, minerals, and antibiotic supplements may be added to the drinking water.
7. After 15 days, the birds are transferred to a grower house; or reduced in number to fit the floor space requirement for their age.

Brooder Temperature

Behavior of the chicks determines the temperature in the brooder cage. The chicks will huddle together near the source of heat when the temperature is too cold (Fig.7a), lower than what they need. If they keep distance from the heat source, and are panting, the temperature is too hot (Fig. 7b) or above the requirement. Finding them equally distributed inside the brooder cage indicates that they are comfortable with the normal temperature (Figure 7c). Gradual reduction of the temperature in the brooder cage is done as the chicks grow older.

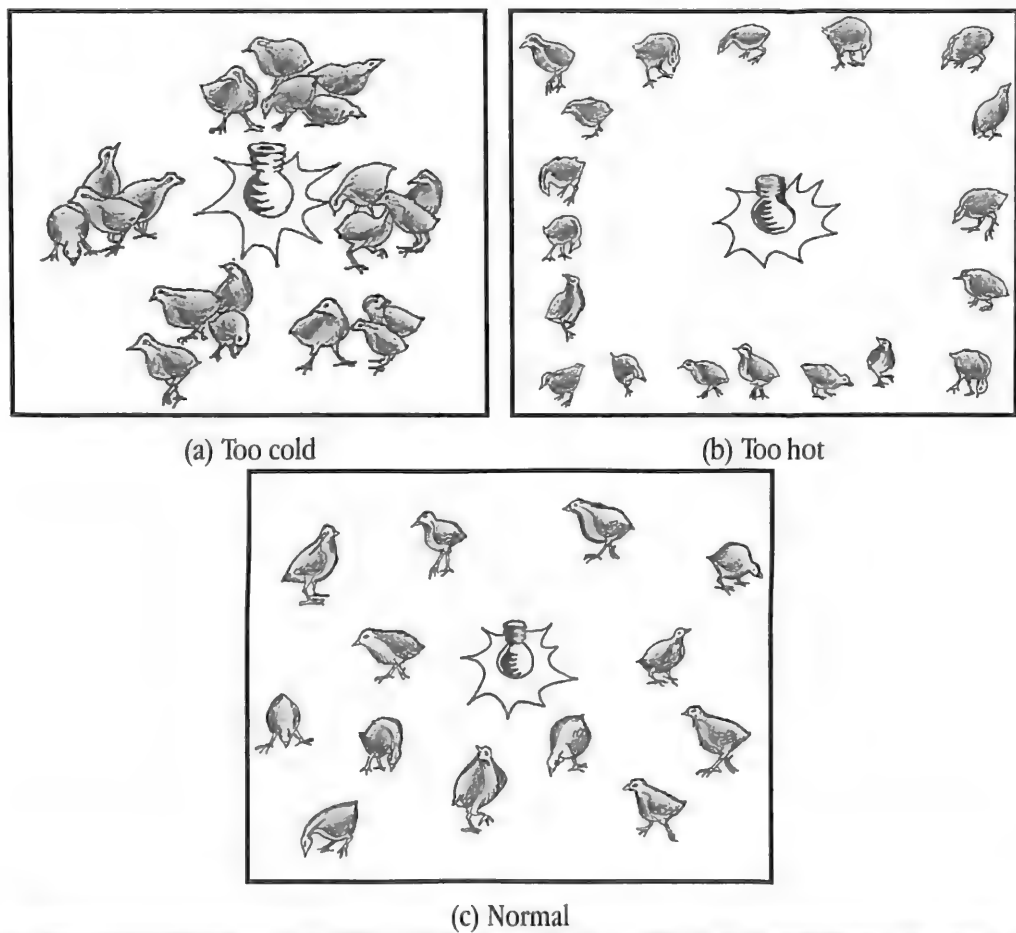


Fig. 7. Behavior of chicks inside a brooder cage

V

Profitability

Table 3. Cost of Production (One Season)

I. Expense Particular	Initial	Monthly	TOTAL (P) (for one year)	TOTAL (P) (for 2nd year)
a. Stocks, 100 RTLP quails @ P26.00*	2,600.00		2,600.00	-
b. Housing equipment @ P7.00/head	700.00		700.00	-
c. Water and electricity, @ P0.50/head		50.00	600.00	600.00
d. Feeds - 2 kgs layer feeds @ P27.00/kg		1620.00	19,440.00	17,496.00
e. Labor (family at P1.00 per head)		100.00	1,200.00	700.00
YEARLY TOTAL	3,300.00	1,770.00	24,540.00	18,796.00
TOTAL EXPENSES (one season)				43,336.00

Table 4. Income

Particular	Daily	Monthly	Total
First year harvest of 70** eggs @ P1.25***	87.50	2,625	31,500.00
Second year of 60**** eggs @ P1.25	75.00	2,250	27,000.00
Culls sold on the 2nd year @ P25.00			1,750.00
TOTAL INCOME (one season)			60,250.00

ROI (1st year) = 28.36%

ROI (2nd year) = 53%

Conservative Assumptions:

*pick-up price at Dr. Quail farm, Sariaya, Quezon. One of the largest commercial quail farm in Quezon and Bulacan

** 70% of the quails lay eggs everyday

***current price in the wet market. But, with added value, (box or quail tray), it costs P3.50/pc

**** 60% of the quails lay eggs daily

Laws and Restrictions

Republic Act 9003 provides for an ecological solid waste management program, creating the necessary institutional mechanisms and incentives, declaring certain acts prohibited and providing penalties and appropriate funds thereof, and for other purposes. This law mandates the Local Government Units (LGUs) to manage their constituents' wastes. Segregation of biodegradable and non-degradable wastes from household as well as farm or agricultural waste is required. To ensure compliance, the LGUs creates programs and/or rewards. Meanwhile, the Philippine Clean Air Act (RA 8749) aims to achieve and maintain healthy air for all Filipinos. Section 3 of this Act focuses on pollution prevention, rather than control.

To abide by these laws, a compost pit must be prepared where the daily collection of manure will be disposed for composting; thus, having an organic fertilizer for the plants, flower and/or vegetable backyard garden.

Notes

For additional information, reading materials, quail supplies, and personal chat with farm owner, visit the following links: <http://drquail.multiply.com/>; <http://medallaquailfarm.multiply.com/> or ldc.da.gov.ph.. Other successful quail raisers are available through the links listed in the Appendix page.

Nutritional facts of quail eggs compared with chicken egg is shown below

Chicken Egg		Quail Egg	
Amount Per Serving Size, 50g		Amount Per Serving Size, 9g	
Calories 77	Calories from Fat 48	Calories 14	Calories from Fat 9
% Daily Value		% Daily Value	
Total Fat 5g	8%	Total Fat 1g	2%
Saturated Fat, 2g	8%	Saturated Fat, 0g	2%
Trans Fat		Trans Fat	
Cholesterol 212mg	71%	Cholesterol 76 mg	25%
Sodium 62mg	3%	Sodium 13mg	1%
Total Carbohydrate 1g	0%	Total Carbohydrate 0g	0%
Dietary Fiber 0g	0%	Dietary Fiber 0g	0%
Sugars 1 g		Sugars 0g	
Protein 6g		Protein 1g	
Vitamin A 6%	Vitamin C 0%	Vitamin A 1%	Vitamin C 0%
Calcium 2%	Iron 3%	Calcium 1%	Iron 2%
*Percent Daily Values are based on a 2,000 calorie diet. Daily values may be higher or lower depending on calorie needs.		*Percent Daily Values are based on a 2,000 calorie diet. Daily values may be higher or lower depending on calorie needs.	

Source: NutritionData.com

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Appendix on Popular Quail Eggs and Meat Recipes

A. Popular Quail Meat Recipes

1. Quail Adobo (in Coconut Milk)

Ingredients:

8 pcs dressed quail	¼ cup vinegar
5 cloves garlic, pounded	salt to taste
Ginger, cut into strips	black pepper
1 cup pure coconut milk	atsuete extract

Procedure:

1. Cut the cressed birds into convenient sizes.
2. Mix the meat with garlic, vinegar, water, ginger, salt and pepper in a casserole and cook over a low fire.
3. Add the atsuete extract and the coconut milk when the meat has partially tenderized.
4. Continue cooking until the desire degree of doness is achieved.

2. Quail Kaldereta

Ingredients:

8 pcs dressed quail	2 cloves garlic
1 head onion	1 can liver spread
3 medium sized tomatoes	black pepper
15 pcs hard boiled quail eggs	½ can gisantes
¼ kg potatoes, cut into cubes	salt
2 pcs bell pepper, cut into strips	chilli (optional)
1 tsp powdered pimienta	cooking oil

Procedure:

1. Cut the dressed birds into desired sizes.
2. Saute the garlic, onion and cook the meat until it is golden brown.

3. Add a dash of black pepper, salt and chili (optional).
4. Add half of the bell pepper, cook until it reaches the desired degree of doneness.
5. Dissolve the pimienta powder in the soup and add the cubed potatoes.
6. Thicken the liquid portion by stirring in the liver spread.
7. When the potatoes are nearly cooked, add the green peas and the remaining bell pepper.
8. Put the dish in a platter and garnish with hard boiled quail eggs.

3. Quail Barbecue

Ingredients:

8 pcs dressed quail	½ cup orange juice
chilli powder	concentrate
salt	2 tbsp cooking oil or salad oil

Procedure:

1. Wash the dressed quail thoroughly and drain.
2. Rub the meat with salt to taste. Evenly sprinkle chilli powder on the surface of the meat. The amount of powder depends on the desired degree of spiciness.
3. Marinate the meat in the orange juice for 30 minutes.
4. Roast over hot charcoal. Spread a little amount of marinade on the surface of the meat from time to time while roasting.
5. Serve hot with your favorite salad.

Source: Capitan, SS. The Science and Practice of Quail Production and Management.

B. Popular Quail Egg Recipes

1. Sipo Egg

Sipo Egg with mixed vegetables and quail eggs smothered in a rich, creamy sauce is the ultimate vegetable dish! Easy to make and super tasty; it's perfect when paired with steamed rice!

Ingredients:

- 12 pieces quail eggs, hard-boiled and peeled
- 1 tablespoon butter
- 1 onion, peeled and chopped
- 2 cloves garlic, peeled and minced
- 1 tablespoon fish sauce
- 2 large carrots, peeled and cut into 1/2-inch cubes
- 1 large singkamas (jicama), peeled and cut into 1/2-inch cubes
- 1/2 cup water or chicken stock
- 1 cup frozen sweet peas, thawed
- 1 cup table cream
- salt and pepper to taste



Procedure:

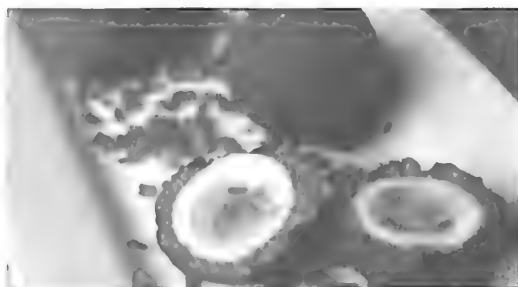
1. In a wide pan over medium heat, heat butter until melted.
2. Add onions and garlic; then, cook and stir regularly until softened.
3. Add fish sauce and continue to cook for about 1 minute.
4. Add carrots and jicama, and stir to combine.
5. Add water or stock and bring to a boil. Continue to cook for about 7 to 10 minutes or until vegetables are tender, yet crispy and the liquid is reduced.
6. Add green peas and stir to combine.

7. Add table cream. Season with salt and pepper to taste.

8. Continue to simmer for about 2 to 3 minutes or until green peas are heated through, vegetables are tender-crisp, and sauce is slightly thickened. Serve while hot.

Notes: If using shrimp, add after the onions and garlic have turned limp. Cook until the color starts to change; then, add the rest of the ingredients as recipe directs.

Source: Lalaine Mercado
(<https://www.kawalingpinoy.com/sipo-egg/>)



2. Scotch Quail Eggs

Ingredients:

- Mini eggs wrapped in meat and deep fried
- 18 quail eggs
- ½ pound ground beef or loose sausage
- 2 pcs eggs
- Flour
- Bread crumbs
- Chives
- Oil for frying

Procedure:

1. Bring a pot of water to a hard boil. In 3 batches, boil the quail eggs for exactly 1 minute and 50 seconds. Immediately rinse with cold water to stop the cooking process.
2. Gently peel the eggs, removing the shell and the thin inner shell lining. Break the shell all around the egg first; then, start at the top, making sure to grab hold of the inner lining as well as the shell. Then, work in a spiral around the egg, pulling off the entire shell in one continuous strip.
3. Beat the 2 chicken eggs to form an egg wash, and prepare the breading station with a plate of flour, egg wash, and breadcrumbs.
4. Roll out the beef or sausage very thinly and with light salt.

5. Lightly put flour all over the egg. Wrap in a thin layer of meat and press into the hand in an effort to seal the meat all around the egg. Don't press too hard to avoid breaking the yolk!
6. When the meat is sealed around the egg, lightly flour it and roll it around the hands again, using the flour coating to help seal everything shut.
7. Lightly dust with flour again; then, coat in egg, and finally with the breadcrumbs.
8. Deep fry at 350°F for about 2 minutes until the breadcrumbs are nicely browned.
9. Garnish with chives and serve.

Source: <https://www.tablespoon.com/recipes/scotch-eggs/bcfc0cd7-13f6-4a61-bfc4-da6d1f853cab>

3. Kwek Kwek Recipe - A Filipino street food from Quail Eggs

Ingredients:

- 24-30 pcs quail eggs
- 1 cup flour
- ¼ cup corn starch
- 1 tsp baking powder
- 1 tsp salt
- ¼ tsp ground pepper
- ¾ cup water
- orange food color
- ¼ cup flour (for dredging)
- oil for frying



Procedure:

1. Place quail eggs in a pot and fill with tap water, enough to submerge them completely. Bring water to a rolling boil over high heat. Once it boils, turn off the heat and cover the pot and let it sit for 10 minutes.
2. Remove the quail eggs from the hot water and transfer into an ice bath or cold water. Peel off the eggshells once cool enough to handle.

3. In a bowl, combine 1 cup flour, cornstarch, baking powder, salt, ground pepper and water and mix to form a batter. Consistency is almost similar to that of a pancake batter, only a bit thicker. Add enough food color and mix until the desired color is achieved.
4. Spread 1/4 cup of flour on a plate. Dredge each egg with flour, covering the surface completely.
5. Drop the floured quail eggs, one at a time into the orange batter and using a fork or a barbecue stick, turn them over to cover them completely with batter. Do this in batches, about 5-6 eggs per batch.
6. In a small pot, heat enough oil over medium-high heat. Once hot, use a stick or a skewer to pierce a coated egg and transfer it to the hot oil and a fork to remove the egg off the skewer and into the hot oil. Fry a batch at a time, about 1-2 minutes each side or until crispy.
7. Remove the eggs from the hot oil and transfer into a plate lined with paper towel to remove excess oil.
8. Serve while hot and with skin still crispy with vinegar dip or special Kwek Kwek sauce.

RECIPE NOTES

1. Vinegar Dip: 1/2 cup vinegar, (1/4 cup water -optional), 1 small red onion-chopped finely, 1 teaspoon salt, 1/4 teaspoon ground pepper, (1 hot chili, chopped-optional)
2. Liquid food color can be used, combining red and yellow to get the hue that is desired. Food color in powder form is also advisable.
3. Annatto powder can also be used to color the butter.

Source: <https://www.foxyfolksy.com/kwek-kwek/>

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May ₱era sa Agrikultura

